查询TES2N供应商

TRACO POWER®

DC/DC Converters

TES 2N Series, 2 Watt

RoHS compliant

cULus pending

Features

- Low Profile SMD-Package
- Wide 2:1 Input Voltage Range
- I/O-Isolation 1500 VDC
- Input Filter meets EN55022, Class A
- Operating Temperature Range -40°C to +71°C
- Short-Circuit Protection
- Lead free Design, RoHS compliant
- 3 Year Product Warranty

The TES-2N series is a family of high performance 2W DC/DC converter modules featuring wide 2:1 input voltage ranges. The 28 models come in a low profile SMD package which requires just 3 cm^2 space on the PCB. A high efficiency allows an operating temperature range of –40°C to 71°C without derating. A built-in EMI input filter complies with EN 55022, class A. Typical applications for these converters are battery operated equipment, instrumentation, communication and industrial electronics, everywhere where isolated, tightly regulated voltages are required.

Models

Ordercode	Input voltage range	Output voltage	Output current max.	Efficiency typ.
TES 2N-0510	4.5 – 9.0 VDC	3.3 VDC	500 mA	70 %
TES 2N-0511		5 VDC	400 mA	73 %
TES 2N-0512		12VDC	165 mA	75 %
TES 2N-0513		15 VDC	135 mA	73 %
TES 2N-0521		± 5 VDC	± 200 mA	64 %
TES 2N-0522		± 12 VDC	± 85 mA	69 %
TES 2N-0523		± 15 VDC	± 65 mA	71 %
TES 2N-1210	9 – 18 VDC	3.3 VDC	500 mA	73 %
TES 2N-1211		5 VDC	400 mA	77 %
TES 2N-1212		12 VDC	165 mA	80 %
TES 2N-1213		15 VDC	135 mA	80 %
TES 2N-1221		± 5 VDC	± 200 mA	73 %
TES 2N-1222		± 12 VDC	± 85 mA	78 %
TES 2N-1223		± 15 VDC	± 65 mA	78 %
TES 2N-2410	18 – 36 VDC	3.3 VDC	500 mA	72 %
TES 2N-2411		5 VDC	400 mA	77 %
TES 2N-2412		12 VDC	165 mA	80 %
TES 2N-2413		15 VDC	135 mA	81 %
TES 2N-2421		± 5 VDC	± 200 mA	74 %
TES 2N-2422		± 12 VDC	± 85 mA	78 %
TES 2N-2423		± 15 VDC	± 65 mA	80 %
TES 2N-4810	36 – 72 VDC	3.3 VDC	500 mA	71 %
TES 2N-4811		5 VDC	400 mA	73 %
TES 2N-4812		12 VDC	165 mA	79 %
TES 2N-4813		15 VDC	135 mA	79 %
TES 2N-4821		± 5 VDC	± 200 mA	71 %
TES 2N-4822		± 12 VDC	± 85 mA	77 %
TES 2N-4823		± 15 VDC	± 65 mA	77 %

Input Specifications

Input current at full load (nominal input)	5 Vin models:	600 mA typ.
	12 Vin models:	220 mA typ.
	24 Vin models:	110 mA typ.
	48 Vin models:	55 mA typ.
Surge voltage (100 msec. max.)	5 Vin models:	11 V max.
	12 Vin models:	25 V max.
	24 Vin models:	50 V max.
	48 Vin models:	100 V max.
Conducted noise (input)		EN 55022 level A, FCC part 15, level A

Output Specifications

Voltage set accuracy		± 2 %
Regulation	– Input variation Vin min. to Vin max.	± 0.5 % max.
	– Load variation 25 – 100 %	± 0.75 % max.
	dual output models:	± 2.0% (balanced load)
Ripple and noise (20 MHz Bandwidth)		50 mVpk-pk max
Temperature coefficient		± 0.02 %/K
Short circuit protection		indefinite, automatic recovery
Minimum load		25% of rated max current (operation at lower load condition is safe but a higher output ripple will be experienced)
Capacitive load	3.3 VDC output models:	2'200 µF max.
	5 VDC output models:	1'000 µF max.
	12 VDC output models:	170 µF max.
	15 VDC output models:	110 µF max.
	± 5 VDC output models:	470 µF max.
	± 12 VDC output models:	100 µF max.
	± 15 VDC output models:	47 µF max.

General Specifications

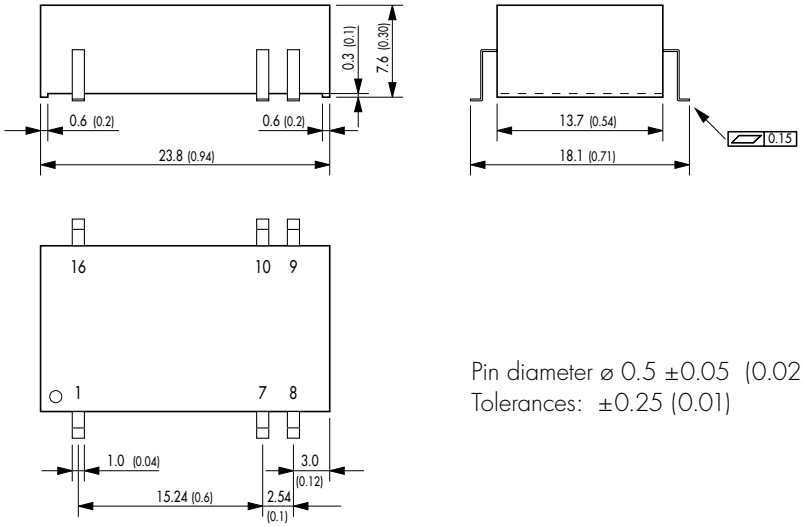
Temperature ranges	– Operating	– 40 °C ... + 71 °C (no derating)
	– Storage	– 55 °C ... + 125 °C
Humidity (non condensing)		95 % rel. H max.
Reliability, calculated MTBF (MIL-HDBK-217 F)		> 1.0 Mio h @ 25°C
Isolation voltage	Input/Output	1'500 VDC
Isolation capacity	Input/Output	250 pF
Isolation resistance	Input/Output (500 VDC)	> 1'000 M Ohm
Switching frequency		300 kHz (PFM)

General Specifications

Case material	non conductive FR4
Weight	3.8 g (0.13oz)
Reflow soldering profile	Peak temp. 245°C (10 sec max.) 217°C for 90 sec. max. Convection reflow solder process is recommended

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

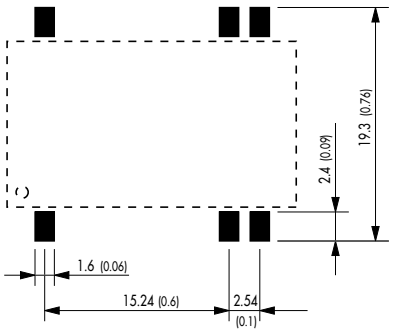
Outline Dimensions mm (inches)



Pin diameter ø 0.5 ±0.05 (0.02) ±0.002
Tolerances: ±0.25 (0.01)

Pin-Out		
Pin	**Single**	**Dual**
1	–Vin (GND)	–Vin (GND)
7	No con.	No con.
8	No con.	Common
9	+Vout	+Vout
10	–Vout	–Vout
16	+Vin	+Vin

Outline Dimensions mm (inches)



Specifications can be changed without notice